spe INJECTION MOLDING

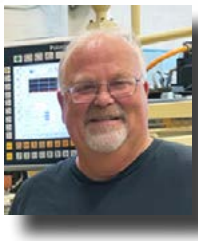
MOLDING VIEWS

Brought to you by the Injection Molding Division of the Society of Plastics Engineers

Summer 2022 | No. 117

Chair's Message

David A. Okonski



Division Membership & Fellow SPE Colleagues,

On June 7th, the Injection Molding Division (IMD) held its annual business meeting, and the Division Chair position passed from Joseph Lawrence to me, David Okonski. I want to personally THANK Joseph for all his work this past year in keeping the IMD viable as we emerged from the pandemic (that dirty little 8 letter word). It is now my job to reenergize our passion for plastics by creating value for membership through education and technology transfer that is only effectively provided through in-person conferences/events. It is time people to get rid of your Zoom accounts and join the living; in my opinion, the greatest value of being a Society member is networking with people smarter than you in a safe environment.

Since my last term as Division Chair in 2015, I have strived to get the IMD actively involved with conferencing – we established the Injection Molding Technical Conference (IMTECH) in 2017, and since 2015, the IMD has partnered with the SPE Detroit Section to provide technical content for the SPE Auto EPCON Conference. Auto EPCON 2022 was an in-person, one day conference held on May 3rd that was loaded with high-level technical content on thermoplastic as well as thermoset material systems and processes ranging from injection molding to compression molding to extrusion deposition; if you weren't there, then you should have been. Did you attend the Penn State Behrend Innovation & Emerging Technologies Conference on June 8th & 9th? If not, then you should have. Please don't let networking and technology events pass by. The next in-person conference for the IMD is Sustainability Rocks, Part II on October 13th in Cleveland Ohio – be there or you'll miss yet another fantastic opportunity to network with your industry colleagues.

Finally, the last two and half years have been tough on all of us. I really believe that now is the time for each one of us to do a self-assessment – please ask yourself two questions: 1) Why am I a member of SPE and the Injection Molding Division, in particular and 2) What value can I bring to the Division in the next two years. It is my mission to provide something of value to you, but what are you going to do for me. Will you become a Board member and be actively engage in promoting the plastics industry? Will you join a conference organizing committee and help us plan technical events? Will you sponsor our conferences and attend our conferences to facilitate dialog amongst peers? There are many ways that you can help us make SPE and the IMD better – just do something!!

Best Regards to All,
David A. Okonski
SPE Injection Molding Chair
Staff Research Engineer, GM Global R&D Center

In This Issue:

Keep the connection!
Join us on:

LinkedIn Find us on Facebook

Industry Events/Webinar Calendar

Click the show links for more information on these events!

AUGUST 2022

SPE NATIONAL WEEK OF INJECTION MOLDING

MONDAY, AUGUST 1, 2022 - FRIDAY, AUGUST 5, 2022

Virtual Event
Hosted by SPE Injection Molding Division
Technical Program Chair: Lynzie Nebel, Upstream Quote Engineer, Cytiva
FOR MORE INFORMATION: https://www.4spe.org/i4a/pages/index.cfm?pageid=7676

SPE NATIONAL WEEK OF ROTATIONAL MOLDING 2022 - PRODUCT DESIGN SEMINAR

MONDAY, AUGUST 8, 2022 10:00 AM (EDT) - 3:00 PM (EDT)

Virtual Event
Hosted by SPE Rotational Molding Division
FOR MORE INFORMATION: https://www.4spe.org/i4a/pages/index.cfm?pageID=7469

SPE NATIONAL WEEK OF ROTATIONAL MOLDING 2022 - THE R'S OF ROTATIONAL MOLDING - RE-ENERGIZE - RE-INVENT - RECYCLING – RESILIENCE - PART 1

TUESDAY, AUGUST 9, 2022 9:00 AM (EDT) - 4:00 PM (EDT)

Virtual Event
Hosted by SPE Rotational Molding Division
FOR MORE INFORMATION: https://www.4spe.org/i4a/pages/index.cfm?pageID=7469

SPE NATIONAL WEEK OF ROTATIONAL MOLDING 2022 - THE R'S OF ROTATIONAL MOLDING - RE-ENERGIZE - RE-INVENT - RECYCLING – RESILIENCE - PART 2

WEDNESDAY, AUGUST 10, 2022 10:00 AM (EDT) - 4:00 PM (EDT)

Virtual Event
Hosted by SPE Rotational Molding Division
FOR MORE INFORMATION: https://www.4spe.org/i4a/pages/index.cfm?pageID=7470

SEPTEMBER 2022

SPE ADDITIVES AND COLOR MIDDLE EAST - VIRTUAL CONFERENCE

THURSDAY, SEPTEMBER 1, 2022

Virtual Event
Hosted by SPE Middle East Section

FOR MORE INFORMATION: https://www.4spe.org/i4a/pages/index.cfm?pageid=7603

Industry Events/Webinar Calendar

SEPTEMBER 2022

2022 SPE ANNUAL BLOW MOLDING CONFERENCE

MONDAY, SEPTEMBER 12, 2022 8:00 AM (EST) - WEDNESDAY, SEPTEMBER 14, 2022 5:00 PM (EST)

Lowes Philadelphia Hotel, Philadelphia, PA
Hosted by SPE Blow Molding Division.

SPE COLOR AND APPEARANCE CONFERENCE (CAD RETEC®)

MONDAY, SEPTEMBER 12, 2022 8:00 AM (EDT) - WEDNESDAY, SEPTEMBER 14, 2022 5:00 PM (EDT)

Orlando, FL
Hosted by SPE Color and Appearance Division

FOR MORE INFORMATION VISIT: https://specad.org/#blog-1-post-7061

SPE THERMOPLASTIC ELASTOMERS CONFERENCE

TUESDAY, SEPTEMBER 20, 2022 8:00 AM (CST) - THURSDAY, SEPTEMBER 22, 2022 5:00 PM (CST)

Hilton Akron Fairlawn Hotel and Suites, 3180 West Market Street, Akron, Ohio 44333
Hosted by SPE Thermoplastic Elastomers Technical Interest Group and SPE Akron Section

FOR MORE INFORMATION VISIT: https://www.4spe.org/i4a/pages/index.cfm?pageID=7412

SPE VINYLTEC® 2022

TUESDAY, SEPTEMBER 27, 2022 8:00 AM (EDT) - THURSDAY, SEPTEMBER 29, 2022 4:00 AM (EDT)

King of Prussia, PA
Hosted by SPE Palisades-MidAtlantic Section and SPE Vinyl Plastics Division

SPE Vinyl Plastics Division and SPE Palisades-MidAtlantic Section are excited to announce that this year's conference will be a hybrid event held at the Crown Plaza Philadelphia in King of Prussia, PA. Charting the Course for a Sustainable Future is focused on technologies and topics of importance to the vinyl plastics industry.

FOR MORE INFORMATION VISIT: https://www.4spe.org/i4a/pages/index.cfm?pageid=7493

SAVE THE DATE!

OCTOBER 13, 2022 • CLEVELAND, OH

"SUSTAINABILITY ROCKS" PART TWO

Helping Molders Tune in to the Circular Economy

IN-PERSON Event sponsored by the SPE Injection Molding Division and the Cleveland and Akron SPE Sections

- Technical and Practical Presentations by Sustainability Experts
- Panel Discussions
- Networking Reception

For sponsorship and speaker opportunities contact:
SPEClеComm@gmail.com

Effinno Technical Brief

By Hank Tsai

What is a "burn mark"?

Herein burn mark refers to a defect of injection molded parts with the phenomenon of gray, brown, or black and tar-like local discoloration of the plastics that usually happens at the corners of end-filling position or deep ribs of thin-wall parts, as illustrated in **Figure 1**. As the term expresses itself, a burn mark looks like a residual mark after something is burnt for a few seconds at its end by a lighter and extinguished.

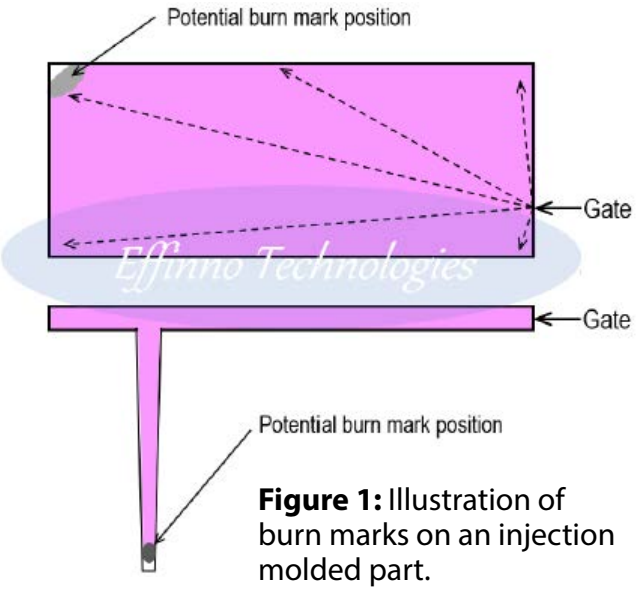


Figure 1: Illustration of burn marks on an injection molded part.

Why does "burn mark" happen?

But how comes the burn mark on an injection molded part since no one ever used a lighter to burn it? The culprit is the air in the cavity that is trapped after the mold closes. Before discussing further, let's stray a bit from this subject to know more about a physical phenomenon of the ideal gas – the adiabatic process.

Figure 2 shows the pressure-volume-temperature relationship of the ideal gas from the thermostatic process point of view. On an isotherm (T1) where the condition of gas temperature is kept unchanged, the pressure of the gas in a space increases (P1 to P2) when the gas volume decreases (compressed, V1 to V2); oppositely, it drops (P2 to P1) when the gas volume increases (expansion, V2 to V1). With the gas volume kept unchanged (V1), the gas pressure increases (P1 to P2) when its temperature increases (heating, T1 to T2) and decreases (P2 to P1) when the temperature decreases (cooling, T2 to T1)). With the gas pressure being the same (P2), its volume increases (expands, V2 to V1) when the gas temperature increases (T1 to T2) and decreases (contracts, V1 to V2) when the temperature decreases (T2 to T1).

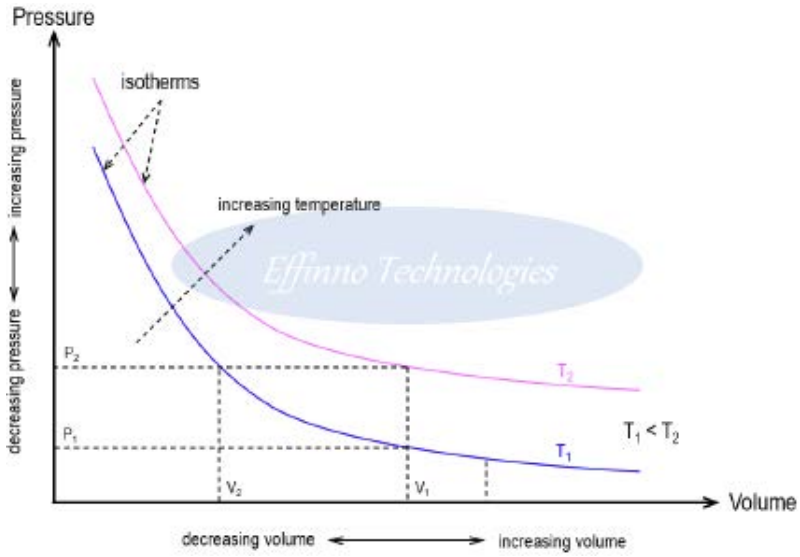


Figure 2: Pressure-Volume-Temperature diagram of the ideal gas

Read Full Story>

X2F's New Capability Opens Up Higher-Volume Production for Encapsulated Electronics and Automotive Optics

Company Adds Rotary Table to its Transformative Plastics Molding Process

X2F, the developer of a transformative plastics processing technology, has added a rotary table which reduces cycle times and opens up higher-volume production for its controlled viscosity molding machine. The rotary table enables X2F to reach production volumes of up to four million parts per year, depending on the cycle time, for the manufacture of critical components in the electronics, automotive, industrial, and medical industries.

"Our technology enables the manufacture of previously impossible-to-mold thermoplastic parts that provide step-change improvements in thermal conductivity, EMI shielding, and high-temperature capability in electronics," said Michael Slowik, CEO of X2F. "Key applications in electric vehicle batteries, metaverse hardware, and mobile phones are driving customer engagement."

X2F's new rotary table will allow the company to efficiently and economically serve its customers' high-volume needs while delivering material properties not currently available at scale.

X2F's new molding technology enables the manufacture of complex product designs using previously "un-moldable" materials from prototyping to production-scale. The controlled viscosity process dramatically reduces material degradation and molded-in stress inherent in today's conventional molding technologies. The process also allows for the use of greater amounts of filler and additives than is currently possible. The result is more complex, stronger, and durable parts with advanced material properties.

Read Full Story>

Equatemp® Internally Heated Single Zone Hot Sprue Bushings Offer Better Melt Flow Control for Consistently Better Parts

By Cynthia Kustush, Melt Design Inc.

Equatemp® Single Zone Hot Sprue Bushings from Melt Design Inc. (MDi), a leading designer and manufacturer of hot runner systems and components, began a new era of internally heated sprue bushings for injection molding.

Available in two styles, the solid body and the solid body with replaceable tips, this bushing's design characteristics make the difference in performance and value. Because they are internally heated, the bushings' high purity ceramic insulator, replaceable thermocouple and predetermined wattage distribution together ensure the highest heat transfer rate, more accurate temperature readings and longer heater life.

With the Equatemp Single Zone bushing (Dual Zone style also available), molders gain better melt flow control for superior quality parts shot after shot. In addition, the convenience of not having to do additional machining when retrofitting cold runner systems saves time and reduces costs.

Melt Design's solid body (MB style) bushing is available with extra stock when machining is required on the tip; and the solid body with replaceable tips (RB style) is offered with a choice of tip options: Topless, Full Body, and Sprue Type to suit processing requirements. Visit www.meltdesign.com. Connect with us on LinkedIn.

Melt Design, Inc. specializes in the design and manufacture of failure resistant, internally heated Hot Runner systems and components servicing molders and mold makers since 1984.

7 Ways to Save Money with the CoPilot

CoPilot® is the plastic injection molding industry's latest process monitoring and control system, but it does a whole lot more than that. Here are 7 ways CoPilot can save you and your company money.

1. Save time

Time is money, right? CoPilot saves this precious resource in countless ways. Two of these ways are by automatically sorting out suspect parts and reducing machine downtime.

Automatically sort parts: Stop the time-consuming (and risky) process of hand-sorting by detecting bad parts before the mold opens and automatically sorting them out based on cavity conditions. Automation also reduces the risk of human error and greatly reduces the risk of bad parts getting in customer hands.

Reduce machine downtime: CoPilot allows you to quickly find and solve the most challenging molding problems and notifies you the moment a process strays from the template. A large, purple screen immediately lets you know that a machine is currently down, and the machine overview screen shows you where there is an issue, so you can quickly get the machine up and running again.

Sometimes all of the machines settings are to the standard, but the parts are not quite where they need to be. This is when cavity pressure template matching shows the true power of CoPilot. Through the use of cavity pressure monitoring, the cavity pressure conditions that made good parts before can quickly be achieved.

2. Reduce scrap

Scrap is wasted materials, time, and money—reducing scrap is a huge opportunity to increase your bottom line. CoPilot helps with this by preventing excessive rejects and monitoring viscosity shifts.

Prevent excessive rejects: Know the moment a machine is making reject parts with real time on-screen notifications. It's hard to miss a large, bright red screen across the plant floor. Knowing immediately when a process has swayed off template allows you to get it back on track before too many reject parts are produced. Also, if the press produces too many rejects over a period, it can shut the press down so the issue can be addressed.

Gain control over your process: When paired with in-mold cavity pressure sensors, CoPilot allows you to gain control over your process. This opens up the possibility for DECOUPLED MOLDING® strategies to improve overall part quality and further reduce the number of suspect parts produced.

Monitor viscosity shifts: Whenever you change to a new lot number or material or introduce regrind, the viscosity can shift up or down. The CoPilot monitors effective viscosity, and alarms can be set to alert the technical staff and avoid costly time trying to identify what is causing the process to shift.

Complete dimensional correlation studies: Correlate process variables such as cavity pressure to part dimensions or hold pressure to weight. This allows you to know, with a high degree of certainty, that parts are either in spec or not.

Read Full Story>

How to Achieve Sustainability Goals: Solving 4 Challenges You May Face When Designing for Recycled Resins

By Jessica Huang, Marketing Specialist of CoreTech System (Moldex3D)

With climate change getting worse, people have become more conscious of their impact to the environment. Companies are receiving growing pressure to address ESG (Environmental, Social, Governance) concerns, striking a balance between their profitability and social impact. Environmental policies like Electronic Product Environmental Assessment Tool (EPEAT), 100% zero-emission vehicle (ZEV) acquisitions by 2035, and circular economy action plan are also stimulating companies to go greener. One important business goal is to achieve design for recycling and make products using recycled content. For instance, in automotive industry, Ford has been using ocean plastics to replace vehicle parts. Dell has developed easier-to-recycle computers and aims to integrate at least 50% of recyclates in all their products by 2030.

Although many have been implementing the concept of design for recycling and some already succeeded, it remains a challenging task. As a designer, you are very likely to face these problems during the product design process:

- How to find suitable recycled materials that have similar properties as virgin plastics
- How to reduce uncertainty when working with recycled materials
- How to validate the right product designs and ensure product quality
- How to reduce the cost of rework and scrap during manufacturing

These problems may seem daunting at first (and they are!), but they will be a lot easier when you have the right tools.

Moldex3D Material Center

Provide you with accurate recycled material information

Choosing ideal materials in the design phase is crucial to reduce the failure rate in production and guarantees good molding behavior. However, recycled plastics have very different physical properties compared to the virgin materials due to molecular structure breakdown and number of regrind cycles. To get accurate material data, you can submit a material testing request to Moldex3D Material Center, which is equipped with high-quality measurement instruments and ISO 17025 accreditation.

Read Full Story>

IMD Board of Directors Meeting Minutes

June 7, 2022

Respectfully Submitted by Secretary Susan Montgomery

Welcome & Opening Remarks

Roll Call: 24 active board members on roster; quorum achieved. It was suggested that our IM BOD members get into the habit of assigning a proxy if unable to attend the meeting. Volunteer Roster submitted to SPE HQ by Tom Giovanetti.

Approval of Last Meeting Minutes (J. Lawrence)
Approved (1st, Ray; 2nd, Pete)
Action item going forward: Be sure that our meeting minutes are recorded in paragraph type form for the newsletter. This is better for transferring information to our Board and Division members.

Financial Report (R. McKee, Treasurer)

Balance after expenses: $52,051.29. No expenses were incurred other than for our newsletter. Ray only paid five invoices in the last twelve months. He noted that the lack of expenditures do not show that we are an active board. How can we improve the situation? What is the IMD Mission Statement? (Promote scientific knowledge). All of us should review the SPE IMD Mission Statement and commit to providing value to our IMD members through technical programs and events.

Technical Director's Report (P. Grelle, Technical Director)

ANTEC 2022, Charlotte, NC
Chad Ulven, 2022 ANTEC IMD TPC

This event was a condensed version of previous ANTECs. Eight presenters were included in the live session, June 16 from 8AM –noon. Best paper award was the first to present in the live session. Chad was informed that papers not included in the live session would be pre-recorded. But there is ambiguity in how this will be structured. No clear communication or direction from SPE HQ on this. Chad tried to keep the authors not presenting engaged; proved to be very difficult. Three of these authors dropped out completely and withdrew their papers; other authors did not submit revisions. Pete followed up with two TPC's from other divisions: they, too, had no idea regarding communication from SPE HQ on authors who submitted papers but were not selected for the live presentations.

ACTION ITEM: Lynzie to follow up with SPE HQ on this topic.

Auto EPCON, May 3, 2022, Troy, MI

Dave Okonski provided a summary. This was a one day conference. The Automotive Division withdrew from being part of the conference organizing committee. Conference had two concurrent sessions, 42 papers of very high technical content. Attendance: 255 total. Twenty exhibitors, all committed to return in 2023. Since the IMD sponsors the conference, more interaction from the IMD is needed (and expected). Most popular topics: Moxitec presentation on novel light-weighting (Alicyn Rhoades); sustainability- not recycling, but reclaiming of base monomers; chemical recycling; simulation databases for materials characterization; low volume, scalable production (3D printing). Main value proposition for attendees: *NETWORKING!*

International Polymer Colloquim, Madison, WI (Tom Turng): CANCELLED FOR 2022

PSU Behrend Innovation and Emerging Technologies Conference 6/8 & 6/9/2022

Brad Johnson provided summary. 150 attendees, about the same as 2016 conference. Money from sponsors used to purchase lab equipment. Sponsors also had presenters in attendance.

ACTION ITEM: Brad will follow up with the conference sponsors to generate interest for sponsorship of Sustainability Rocks, Part II live event in greater Cleveland, OH on October 13, 2022.

Sustainability Rocks, Part II: Cleveland, OH, October 13, 2022

Susan Montgomery, as event Co-Chair (with Peter Grelle) provided overview. Budget, venue, and sponsorship levels were presented. Registration fees were determined by the IMD BOD: SPE IMD Members, free; SPE Members, $25; Non-SPE Members, $99. SPE HQ will assist with the registration and web page. Technical topics of interest were discussed, as well as possible presenters. Conference committee: Saeed Farhani, Davide Masato, Tom Giovanetti, Amanda Nicholson, Susan and Pete. Committee to meet week of July 11 via teleconference. Save the Date and Sponsorship pdf's will be sent to Angela for the newsletter.

ACTION ITEM: Susan will send list of suggested topics/ presenters discussed to Dave Okonski, IMD BOD Chair 2022-2023, who will review and send to IMD BOD members. Board member feedback is needed and expected.

SPE HQ Initiative: Virtual Event, 8/1-8/5/22, National Week of Injection Molding (L. Nebel)

Lynzie is seeking volunteers to submit recorded content regarding injection molding topics such as training, ask the expert panel. The sessions will last for the full week.

ACTION ITEM: IMD BOD members asked to reach out directly to Lynzie with content as soon as possible! Lynzie is also active on the Diversity and Inclusion committee of SPE. Suggestions are welcomed.

Membership Report (E. Foltz)

Erik submitted the following:

Overview: June 2022 - IMD

- **Membership number has dropped to 1,088 members**
- Membership has previously been holding consistent at approximately 2,100-2,200 members

Membership Type	June 2022	May 2021	January 2020	April 2019
Distinguished	7	7	7	7
Emeritus	84	76	90	90
New Young Professional	0 (No longer a Category)	0 (No longer a Category)	27	27
Professional	799	889	759	1346
Student	76	115	212	212
Young Professional	122	114	106 (133)	106
Totals	1,088	1,201	1,560	1,788

Overview: May 2021 - IMD

- **Membership number has dropped to 1,201 members**
  - **This is a drop of 23% from historical numbers**
  - **105 members have a membership lapse**
- Membership has previously been holding consistent at approximately 2,100-2,200 members

Membership Type	May 2021	January 2020	April 2019
Distinguished	7	7	7
Emeritus	76	90	90
New Young Professional	0 (No longer a Category)	27	27
Professional	889	759	1346
Student	115	212	212
Young Professional	114	106 (133)	106
Totals	1,201	1,560	1,788

Overview: Geography - IMD

- Locations for IMD Membership
  - Perhaps partner with local sections
    - Get Networking
    - Help Promote Local Chapters

State	Total Membership
MI	91
WI	82
OH	75
PA	71
CA	55
IL	53
MA	47
NC	44
TX	37
MN	37
NY	30
ON	22
CT	21
GA	19
NJ	19
IN	15
NH	14
QC	13

DISCUSSION: Regarding the suspected rebate vs total member discrepancy, it was noted that 55 division members are located in India. Erik challenged the IMD to promote events and networking in the top geographic membership regions (MI, WI, OH, PA). We have very good university representation on the IMD BOD for student engagement. It was suggested that IMD pursue more board members from IMM manufacturers. All agreed that we, as members of the IMD get more value from our relationships and channels for networking (not from the more academia type events).

Nominating Committee Report (H.Pham)

Hoa presented as follows:

Ballot Results - Board Directors

Total Number of Valid Votes: 44

- ❑ Total Number of ballots received: 54
- ❑ Number of Voided Ballots – not on IMD membership list 9
- ❑ Number of Voided Ballots – voted more than 3 1

Candidate	Count	%
Davide Masato	34	77
Adam Kramschuster	34	77
Tom Turng	34	77
Kishor Mehta	23	52

No write-in candidate for Director

Summary of Ballot 2022

BoD Officers 2022 – 2023 *(ends on June 30, 2023)*

❑ Chair	David Okonski	❑ Treasurer	Raymond McKee
❑ Chair Elect	Chad Ulven	❑ Technical Director	Peter Grelle
❑ Past Chair	Joseph Lawrence	❑ Secretary	Tom Giovannetti

Re-Elected/Elected BoD Directors *(term ends on June 30, 2025)*

- ❑ Davide Masato
- ❑ Adam Kramschuster
- ❑ Tom Turng
- ❑ Kishor Mehta

Councilor July 1, 2020 – June 30, 2023: Edwin Tam

ANTEC Technical Program Chair

Approved on February 18, 2022

Chad Ulven	2021 – 2022 ANTEC 2022
Raymond McKee	2022 – 2023 ANTEC 2023
Tom Giovannetti	2023 – 2024 ANTEC 2024
Davide Masato	2024 – 2025 ANTEC 2025
Amanda Nicholson	2025 – 2026 ANTEC 2026

Call for volunteers for TPC Chair for ANTEC 2027 and beyond.

Chair Progression

Approved on February 18, 2022

Term	TPC	Chair-Elect	Chair
2021 - 2022	Chad Ulven	David Okonski ~~Joseph Lawrence~~	Joseph Lawrence ~~David Okonski~~
2022 - 2023	Raymond McKee	Chad Ulven	David Okonski ~~Joseph Lawrence~~
2023 - 2024	Tom Giovannetti ~~Lynzie Nebel~~	David Kusuma ~~Raymond McKee~~	Chad Ulven
2024 - 2025	Davide Masato ~~Tom Giovannetti~~	Tom Giovannetti ~~Lynzie Nebel~~	David Kusuma ~~Raymond McKee~~
2025 - 2026	Amanda Nicholson	Davide Masato	Tom Giovannetti

By Laws Update(D. Okonsk, J. Dworshak)

Dave worked on the final revision with Jeremy (not in attendance). Jeremy and Hoa did the work on the template from SPE HQ. We tabled this as Dave will email the final version of the By-Laws to IMD BOD. As incoming Chair, Dave can recommend we adopt via virtual ballot. 9 years' consecutive service cap for board members.

Councilor Report (E. Tam)

No updates.

New Business

Update IMD BOD 8/12 on Sustainability Rocks Part II.
Next meeting: October 14, 2022 in Cleveland after the event.
Table location for winter event til we hear from Kishor regarding Tupperware.
MOTION TO ADJOURN: 1st, Dave; 2nd, Erik.

Passing of the Gavel from J. Lawrenct to D. Okonski

Thank you, Joseph, for your leadership as IMD Chair in 2021-2022. Congratulations, Dave for assuming the IMD Chair role for 2022-2023!

Have news about your company?

The Injection Molding Division is seeking company news to share with our members.

Send in your press releases to share on the injection molding division website.

Email your news>

spe®

INJECTION MOLDING

Top Reasons to Join SPE and its Injection Molding Division

Networking within the Plastics Industry
The Injection Molding Division (IMD) boasts the largest membership of all divisions within SPE. Joining the IMD allows you access to over 20,000+ members within your industry.

The Chain
SPE's very own community forum provides tools for you to share information, ask for help, discuss problems, exchange lessons learned, search for information, or simply stay connected with other SPE members.

Online Technical Library
Downloadable technical papers on every key topic in plastics.

PLASTICS INSIGHT
Bringing you weekly focused content from thousands of sources, covering product, research, trends, and more.

SPE PRO-Plastics Research Online
RSS Feed of the latest in plastics research.

Free subscription to "*Plastics Engineering Magazine*"

Awards and Scholarships for Students/Young Professionals
The Injection Molding Division is helping promote the plastics industry to students and young professionals, by offering scholastic and travel scholarships to students interested in the plastics industry.

SPE Conferences and Webinars
Discounts on 40+ SPE Conferences around the world. Bringing you in-depth information on materials, processes or industries to help you gain knowledge and expand your professional network.

Jobs in the Industry
Resources for job seekers. Post your resume free!

Visit www.4spe.org to join today.

IMD Leadership

DIVISION OFFICERS:

Chair: David Okonski (General Motors)
Chair-Elect: Chad Ulven (C2Renew)
Treasurer: Raymond McKee (Currier Plastics)
Secretary: Susan Montgomery (Boardman Molding)
Technical Director: Peter Grelle (Independent Consultant)
Education Committee Chair: Srikanth Pilla (Clemson University)
Past Chair: Joseph Lawrence (University of Toledo)

BOARD OF DIRECTORS:

Communications Chair: Angela Rodenburgh (Ladder Up)
Communications Committee: Adam Kramschuster (University of Wisconsin)
Membership Chair: Erik Foltz (The Madison Group)
Sponsorship Committee Chair: Sriraj Patel (Currier Plastics)
Sponsorship Committee: Alex Beaumont (Beaumont Technologies), David Kusuma (Tupperware)
Education Committee: Vikram Bhargava (Independent Consultant),
Dr. Saeed Farahani (Clemson University), Chad Ulven (C2Renew)
Jeremy Dworshak (3M)
Awards/Scholarships Chair: Lynzie Nebel (Tech Tank)
Awards Committee: Kishor Mehta (Retired Plastics Engineer), Tom Turng (University of Wisconsin)
Board Nominations Chair/Historian/Asst. Treasurer: Hoa Pham (Freudenberg Performance Materials LP)
Board Nominations Committee: Brad Johnson (Penn State)
Technical Programs Committee: Susan Montgomery (Boardman Molding)
Bylaws Chair: David Okonski (General Motors)
Bylaws Committee: Hoa Pham (Freudenberg Performance Materials LP),
Peter Grelle (Independent Consultant), Jeremy Dworshak (3M), Kishor Mehta (Retired)
Councilor: Edwin Tam (Teknor Apex)
Board Members: Larry Geist (Ferguson Production), Amanda Nicholson (Moldex 3D), Davide Masato

ANTEC TCP:

2023 Raymond McKee
2024 Tom Giovannetti
2025 Davide Masato
2026 Amanda Nicholson

EMERITUS:

Jack Dispenza
Larry Cosma
Mal Murthy
Jim Peret
Larry Schmidt
Nick Fountas
Kathy Schacht
Jon Ratzlaff
Heidi Jensen